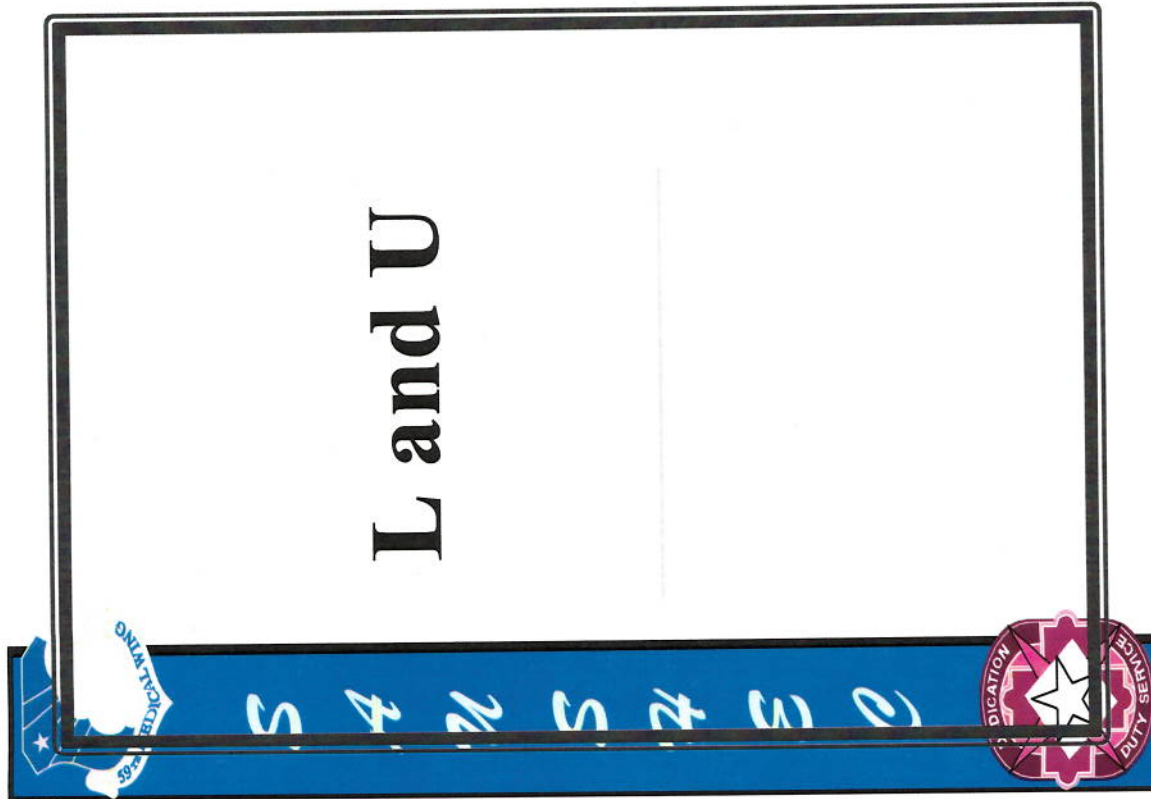


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Overview

- **Indications**
- **Cast Vs Splint**
- **Materials Needed**
- **General Principles**
- **Splint**
- **Cast**
- **Self Evaluation**
- **Points to Discuss with Patient**



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Indications

- Soft-tissue ankle and foot injuries
- Severe ankle sprains and tendinopathy
- Isolated nondisplaced malleolar fracture
- Foot fracture of tarsals & metatarsals



Case courtesy of Kara Iskyan, MD, Medscape.com

Cast Vs Splint

Casting

- **Definitive Management**
- **Does not allow for continued swelling**
- **Better control of ROM**

Splinting

- **Acute Management**
- **Allows for acute swelling**
- **May be static – preventing motion**
- **May be dynamic – functional or assisting with control**
- **ROM limited by application and compliance**
- **Stirrup helps prevent ankle inversion/eversion**



Materials Needed

- Stockinette
- Trauma Shears
- 2 inch paper tape
- Chux pads
- Elastic Bandages (ACE Wrap)
- Padding (Webril)
- Water Receptacle (tepid water 70-80°)
- Splinting Material
 - Plaster of Paris, Pre-fabricated plaster or fiberglass (Orthoglass)
- Casting Material
 - Fiberglass



General Principles

- Measure out dry material at extremity being treated
 - Plaster shrinks slightly when wet; If too long can fold ends back
 - Can be measured on contralateral extremity
- Apply 2-3 layers of web, avoid wrinkles, place extra padding on bony prominences and between digits if needed
- Use approximately 10-12 layers of splinting material (dependent on size of individual)
- Mold with palms of hand vs fingers
- After complete check for function, arterial pulse, capillary refill, temperature of skin, and sensation
- Plain films or fluoroscopy to evaluate injury and splint/cast



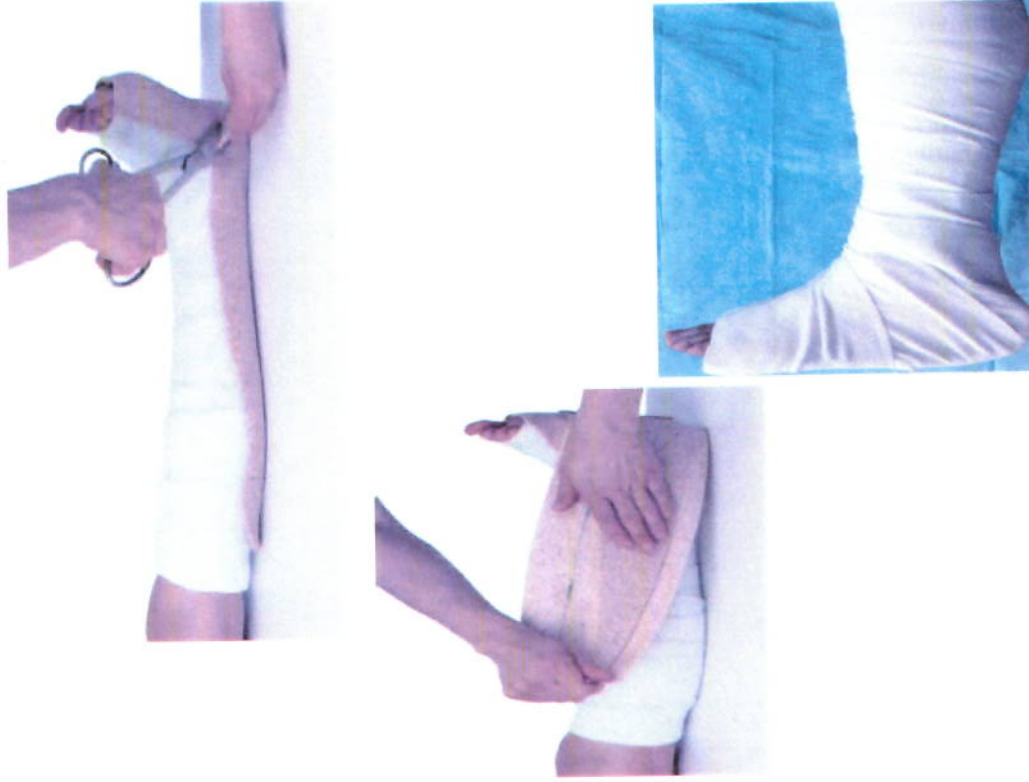
Splinting Order

- Place patient in prone position when possible
- Ankle flexion at 90°
 - Exception for Achilles injury
 - Ankle will be placed in equinos
- Ensure ankle is neither inverted nor everted



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Splinting Order (cont)

- Apply stockinette and/or webril first
- Apply wet/prepared splinting material
- Cover with webril
- Secure with elastic (ACE) band
- Mold splinting material as needed



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Casting Order

- Apply stockinette first, then webril
- Apply wet/prepared initial casting material
- Fold over excessive stockinette
- Apply second layer of wet/prepared casting material
- Mold casting material as needed

Self Evaluation



- Is injured extremity in desired position?
 - Ankle dorsiflexion at 90°
 - Ankle without eversion/inversion
 - Neurovascularly intact distally
- Does injured extremity maintain good color, temp, and cap refill
- Were thermal injuries avoided by ensuring water was not hot and cast was not too thick

Molding

- Place lateral aspects of thumbs on the malleolus and apply even pressure
- Place palm of hand on calcaneus and apply pressure
- Place palm of hand on the plantar surface and apply pressure
 - Pressure application should be held until the contours take shape



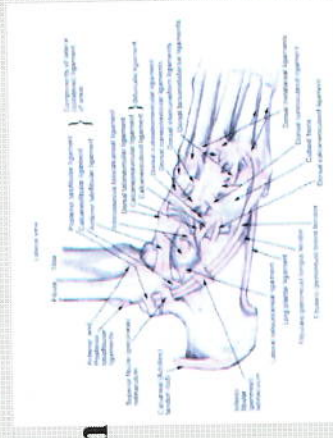
Patient Education

- Elevate injured extremity at home
 - Prop on pillow if needed
- Continue moving other toes, knee, and hips periodically throughout the day
- If cast feels tight despite elevation seek medical assistance
- Do not scratch under cast; do not get cast wet
- Get immediate assistance if:
 - Numbness (pins and needles) of toes
 - Excessive swelling of toes
 - Blueness or whiteness of toes
 - Severe pain



Conclusion

- **Indications**
- **Cast Vs Splint**
- **Materials Needed**
- **Key Points Before any Casting/Splinting**
- **Splint**
- **Cast**
- **Self Evaluation**
- **Points to Discuss with Patient**



References

Boyd, A. S., Benjamin, H. J., & Asplund, C. (2009). Principles of casting and splinting. *American Family Physician*, 80(5). Retrieved from <http://www.aafp.org/afp/2009/0901/p491.html#ref-list-1>

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